ECSA

ENGINEERING COUNCIL OF SOUTH AFRICA

An Effective Regulator Assuring Engineering Excellence

Identification of Engineering work Rule

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ENGINEERING COUNCIL OF SOUTH AFRICA

NOTICE IN TERMS OF THE ENGINEERING PROFESSION ACT, 2000 (ACT NO. 46 OF 2000)

The Council for the Built Environment has under section 20(2) of the Council for the Built Environment Act , 2000 , (Act No. 43 of 2000), read with regulation 2 of the Identification of Work Regulations, 2013, and in accordance with the Council for the Built Environment Policy with Regard to the Identification of Work for the Built Environment Professions determined by the Council for the Built Environment under section 20(1)(a) of the Council for the Built Environment Act, 2000, identified the scope of work for the Engineering Council of South Africa set out in the Schedule.

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TABLES

ABBREVIATIONS

CPD	Continuing Professional Development
ECSA	Engineering Council of South Africa
IDP	Individual Development Plan
PCE	Professional Certificated Engineer
PE	Professional Engineer
PT	Professional Engineering Technician
PN	Professional Engineering Technician
SC	Specified Category

DEFINITIONS

In this notice, unless the context otherwise indicates, every word takes the meaning as defined in the Engineering Profession Act, ,2000 (Act No.46 of 2000) and the Built Environment Act, 2000 (Act No.43 of 2000)

Academic Work: means the process of applying engineering and scientific principles, concepts, contextual and engineering knowledge to the research, planning, design, teaching, learning, assessment, moderation, implementation and management of work in the higher learning institutions.

Candidate: means a person registered in that category in terms of section 18(1)(a)(iii) of the Engineering Profession Act, 2000 (Act No.46 of 2000).

Competency Area: means the performance area in which all the outcomes can be demonstrated at the level prescribed by the specific technology in an integrated manner.

Category Adjustment: refers to the process of modifying or updating the classification or category under which a professional is registered or licensed within a regulatory or professional body.

Competency Indicator: the typifying guide to evidence indicating competence that is not normative.

Categories of Registration: means the categories in which a person is registered in terms of section 18(1)(a)(b)(c) of the Engineering Profession Act,2000 (Act No.46 of 2000).

Construction Works: means the provision of a combination of goods and services arranged for the development, extension, installation, repair, maintenance, renewal, removal, renovation, alteration, dismantling or demolition of a fixed asset including buildings.

Construction Works Project: means a project of which the scope comprises construction works.

Continuing Professional Development: means the systematic maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities necessary for the execution of professional and engineering duties throughout an engineering practitioner's career.

Core Service: means a service referred to in **clause 3** of this document.

Discipline: means the demarcation of the specific body of knowledge within a profession which is applied in a specific context.

ECSA: means the Engineering Council of South Africa established under section 2 of the Engineering Profession Act, 2000 (Act No.46 of 2000).

Engineering Discipline: means the body of knowledge which is applied in one of the following contexts-

a) aeronautical;
b) agricultural;
c) chemical;
d) civil;
e) Computer
f) electrical or electronic;
g) industrial;
h) mechanical;
i) mechatronic;
j) metallurgical; or
k) mining;

Engineering Infrastructure: means infrastructure comprising engineering works which may include but not limited to transport, water, energy, communications and waste management infrastructure.

Engineering Profession Act: means the Engineering Profession Act, 2000 (Act No. 46 of 2000) as amended.

Engineering Project: means a project of which the scope comprises engineering work including engineering infrastructure.

Engineering Work: means the process of applying engineering and scientific principles, concepts, contextual and engineering knowledge to the research, planning, design, academic work, implementation and management of work in both the natural and built environments.

ill-posed Problem: means a problem for which the requirements are not fully defined or may be defined erroneously by the requesting party.

Practice Area: means a generally recognised or distinctive area of knowledge and expertise

developed by an engineering practitioner through the path of education, training and experience followed.

Principal Agent: means the person or entity appointed by the client and who has full authority and obligation to act in terms of the construction contract.

Principal Consultant: means the person or entity appointed by the client to manage and administer the services of all other consultants.

Profession: means any of the professions regulated by the professions' Acts.

Professional Certificated Engineer: means a person registered in that category in terms of section 18(1)(a)(iii) of the Engineering Profession Act, 2000 (Act No.46 of 2000).

Professional Engineer: means a person registered in that category in terms of section 18(1)(a)(i) of the Engineering Profession Act, 2000 (Act No.46 of 2000).

Professional Engineering Technician: means a person registered in that category in terms of section 18(1)(a)(iv) of the Engineering Profession Act, 2000 (Act No.46 of 2000).

Professional Engineering Technologist: means a person registered in that category in terms of section 18(1)(a)(ii) of the Engineering Profession Act, 2000 (Act No.46 of 2000).

Service: means a core service or a specialised service.

Special Consent: refers to a specific type of informed consent that is required in situations where standard consent procedures are insufficient due to the unique nature of the activity, procedure, or research involved.

Specialised Service: means a service which falls outside the standard competencies of a registered person who is a professional and which requires an additional qualification, experience, skill and/or registration with any other applicable council for the professions.

Specified Category Practitioner: means a person registered in terms of section 18(1)(c) of the Engineering Profession Act, 2000 (Act No.46 of 2000) as approved by ECSA from time to time.

Suitably Qualified: means being in possession of a qualification that is recognised by the three accords (Washington Accords for Engineers, Sydney Accords for Technologists and Dublin Accords for Technicians) or accredited by ECSA for purposes of registering a person in any of the categories referred to in Section 18(1)(a), (b) and (c) of the Engineering

Profession Act, 2000 (Act No.46 of 2000) and possess the necessary core competency in the competency areas to perform such core service as a Professional Engineer, Professional Engineering Technologist, Professional Certificated Engineer, Professional Engineering Technician or a Specified Category Practitioner.

Transitional authorisation: refers to a temporary permission granted by the Engineering Council of South Africa (ECSA) to a registered professional in a specific category. This authorization allows the individual to perform work typically reserved for a different category of registered professionals, as outlined in items 6 to 15 of the relevant regulations.

1. IDENTIFIED ENGINEERING WORK

1) For the purposes of this Notice, identified engineering work is work that -

   a) entails the engineering activities performed by a person registered in one of the categories of registration to differentiate one category of registration from another;

   b) requires for its performance the core competencies within the competency areas that a registered person must possess to perform engineering work in the appropriate category of registration;

   c) includes the core services performed by a registered person in any of the categories of registration in a particular engineering discipline;

   d) includes the practice areas of a particular engineering discipline within which a registered person performs engineering work; and

   e) involves performing core services in any of the practise areas of an engineering discipline in accordance with the scope of services.

2) The elements of identified engineering work contemplated in sub-clause (1) of this document are referred to in -

   a) Clause 2, which contains the criteria for category differentiation that is used to determine the engineering activities performed by a person registered in one of the categories of registration;

   b) Clause 3, which contains the core competencies required for each competency area;

   c) Clause 4 to 14, which contain the core services and practice areas for each of the engineering disciplines; and

   d) Clause15, which contains the scope of services for specific engineering work

2. CATEGORY DIFFERENTIATION AND ENGINEERING ACTIVITIES

1) The criteria for category differentiation is based on a distinction between -

   a) a complex (engineers), broadly-defined (technologists and certificated engineers), well-defined (technicians) and specifically-defined engineering problem (specified category practitioners)

   b) a complex (engineers), broadly-defined (technologists and certificated engineers), well-defined (technicians), and specifically-defined engineering activity (specified category practitioner).

Further information is accessible on the following ECSA documents

- **R-02-STA-PE/PT/PN:** Competency Standard for Registration in Professional Categories as Professional Engineer, Professional Engineering Technologist and Professional Engineering Technician **;**
- **R-02-STA-PCE:** Competency Standard for Registration as a Professional Certificated Engineer; and
- **R-02-STA-SC:** Competency Standard for Registration in a Specified Category.

2) For the purpose of this Notice, a Professional Engineer is expected to demonstrate and apply the core competencies referred to in **Table 1** of this document.

3) For the purpose of this Notice, a Professional Engineering Technologist and a Professional Certificated Engineer are expected to demonstrate and apply the core competencies referred to in **Table 1** of this document**.**

4) For the purpose of this Notice, a Professional Engineering Technician is expected to demonstrate and apply the core competencies referred to in **Table 1** of this document.

5) For the purpose of this Notice, a Specified Category Practitioner is expected to demonstrate and apply the core competencies referred to in **Table 1** of this document**.**

6) ECSA has developed guidelines using the complex, broadly defined, well-defined

(refer to documents **R-05-XXX-PE/PT/PN** and **R-05-XXX-PCE**) and specifically defined (refer to documents **R-05-XXX-SC**) criteria contemplated in this section to enable a client or employer to establish which category of registered person is required to perform the work of a specific nature.

3. CORE COMPETENCIES REQUIRED TO PERFORM IDENTIFIED ENGINEERING WORK

1) A person who performs any identified engineering work in a particular engineering discipline must, in addition to any other requirement contemplated in the Engineering Profession Act -

   (a) be suitably qualified;

   (b) be registered by ECSA in the appropriate category (candidate or professional) applicable to the level of service performed; and

   (c) possess the necessary core competency in the competency areas referred to in this section to perform such core service as a Professional Engineer, Professional Engineering Technologist, Professional Certificated Engineer, Professional Engineering Technician or a Specified Category Practitioner.

2) For the purpose of sub-clause (1) "suitably qualified" means being in possession of a qualification that is recognised by the three accords or accredited by ECSA for purposes of registering a person in any of the categories referred to in section 18(1)(a), (b) and (c) of the Engineering Profession Act, 2000 (Act No.46 of 2000).

3) The competency areas referred to in sub-clause (1)(c) for a professional engineer, professional engineering technologist, professional certificated engineer, professional engineering technician and a specified category practitioner are:

   (a) define, investigate and analyse engineering problems;

   (b) design or develop solutions to engineering problems;

   (c) comprehend and apply engineering, technological, technical and specific knowledge in the practice area;

   (d) manage part or all of one or more engineering activities;

(e) communicate clearly with others in the course of the engineering activity;

(f) recognise and address, if applicable, the foreseeable social, cultural and environmental (no limited to the three i.e., heritage, agricultural, visual etc.) impacts of engineering activities generally;

(g) meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her engineering activity;

(h) conduct engineering activities ethically;

(i) exercise sound judgement in the course of engineering activities;

(j) be responsible for making decisions on part or all of one or more engineering activities; and

4) undertake initial and continuing professional development (IDP and CPD) or independent learning activities sufficient to maintain and extend his or her competence. The core competencies referred to in sub-clause (1)(c) that a person registered as a professional engineer, professional engineering technologist, certificated engineer, professional engineering technician or specified category practitioner must possess when he or she performs any core service in a particular engineering discipline referred to in Clause 4 are as indicated by the competency area in **Table 1** of this document.
5) The purpose of a competency area is to limit the applicable knowledge required for each category of registration.
6) The core competencies must be assessed by utilising the competency indicators for each competency area referred to in **Table 1** of this document.
7) The competency indicators in **Table 2** of this document are only typifying and other competency indicators may be used provided such other competency indicators are clear indicators of competence.

Table 1: Competency areas required of a person registered as a professional engineer, professional engineering technologist, certificated engineer, professional engineering technician and a specified category practitioner to perform the core services.

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner Note: The term *specifically-defined engineering* below may be interchanged with the specific category designation, i.e. Lift Inspector, Lifting Machinery Inspector, Medical Equipment Maintainer, Fire Protection Systems Practitioner, or any future specified category prescribed by the Council.
Demonstration of Competence Competence must be demonstrated within complex engineering activities, defined below, by integrated performance of the Competency areas defined in section 3 above at the level defined for each Competency area. Required contexts and functions may be specified in the applicable Discipline Specific Training Guidelines. Characteristics of Complex engineering problems are indicated in R-02-STA-PE/PT/PN .	Demonstration of Competence Competence must be demonstrated within broadly-defined engineering activities, defined below, by integrated performance of the Competency areas defined in section 3above at the level defined for each Competency area. Required contexts and functions may be specified in the applicable Discipline Specific Training Guidelines. Characteristics of Broadly-defined engineering problems are indicated in R-02-STA-PE/PT/PN and R-02-STA-PCE	Demonstration of Competence Competence must be demonstrated within we*ll- defined engineering activities,* defined below, by the integrated performance of the Competency areas defined in section 3 above at the level defined for each Competency area. Required contexts and functions may be specified in the applicable Discipline Specific Training Guidelines. Characteristics of *Well-defined engineering problems* are indicated in R-02-STA-PE/PT/PN.	Demonstration of Competence Competence must be demonstrated within *specifically-defined engineering* activities, defined below, by integrated performance of the Competency areas defined in section 3 above at the level defined for each Competency area. Required contexts and functions may be specified in the applicable Discipline Specific Training Guidelines. Characteristics of *Specifically-defined engineering problems* are indicated in R-02-STA-SC
Competence Area 1: Define, investigate and analyse complex engineering problems.	**Competence Area 1:** Define, investigate and analyse broadly-defined engineering problems.	**Competence Area 1:** Define, investigate and analyse well-defined engineering problems	**Competence Area 1:** Define, investigate and analyse specifically- defined engineering problems (tasks)
Level Descriptor: *Complex engineering problems have the characteristics indicated in R-02-STA-PE/PT/PN.*	Level Descriptor: *Broadly-defined engineering problems have the characteristics indicated in* R-02-STA-PE/PT/PN and R-02-STA-PCE.	Level Descriptor: *Well-defined engineering problems have the characteristics indicated in* R-02-STA-PE/PT/PN.	Level Descriptor: *Specifically-defined engineering problems have the characteristics indicated in* R-02-STA-SC..
Range Statement: The problem may be the design of a component, system or process or a recommendation of the remedy to a problematic situation.	**Range Statement**: The problem may be a design requirement, an applied R&D requirement or a problematic situation in an existing component, system or process. The problem is one amenable to solution by technologies known. This competency area is concerned with the understanding of a problem: competency area 2 is concerned with the solution.	**Range Statement**: The problem may be part of a larger engineering activity or may stand alone. The design problem is amenable to solution by established techniques practiced regularly. This competency area is concerned with the understanding of a problem: competency area 2 is concerned with the solution .	**Range Statement**: The problem (task) may be part of a larger engineering activity or may be stand alone. The design (planning) problem is amenable to solution I by established specific techniques practiced regularly. This competency area is concerned with theI understanding of a problem: competency area 2 is concerned with the solution.

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 2: Design or develop solutions to complex engineering problems	**Competency Area 2:** Design or develop solutions to broadly-defined engineering problems	**Competency Area 2:** Design or develop solutions to well-defined engineering problems .	**Competency Area 2:** Design or develop (plan) solutions to specifically-defined engineering problems (tasks).
Range Statement: The solutions may be the design of a component, system or process or a recommendation of the remedy to a problematic situation.	**Range Statement:** Solutions are those enabled by the technologies in the broadly-defined practice area.	**Range Statement:** The solution is amenable to established methods, techniques or procedures within the well-defined practice area.	**Range Statement:** The solution conforms to specific established methods, techniques or procedures within the specifically-defined practice area.
Competency Area 3: Comprehend and apply advanced and local knowledge of the widely applied principles underpinning good practice that is specific to the jurisdiction in which the Engineer practices.	**Competency Area 3:** Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems and methodologies that is specific to the jurisdiction in which the Engineering Technologist practices.	**Competency Area 3:** Comprehend and apply knowledge that is embodied in established engineering practices that is specific to the jurisdiction in which the Engineering Technician practices.	**Competency Area 3:** Comprehend and apply knowledge embodied in established specific engineering practices and knowledge specific to the field and scope in which he/she practises.
Range Statement: Applicable knowledge includes: (a) specialist knowledge has depth in the practice area and is underpinned by the fundamental knowledge of an engineering discipline or cross disciplinary area allowing a fundamentals-based, first principle analytical approach building models as required (b) A working knowledge of interacting disciplines (engineering and other) to underpin teamwork.	**Range Statement:** Applicable knowledge includes: (a) Technological knowledge that is well established and applicable to the practice area irrespective of location, supplemented by locally relevant knowledge, for example, established properties of local materials. Emerging technologies are adopted from form (b) A working knowledge of interacting disciplines (engineering and other) to underpin team work.	**Range Statement:** Applicable knowledge includes: (a) Technical knowledge that is applicable to the practice area irrespective of location, supplemented by locally relevant knowledge, for example established properties of local materials (b) A working knowledge of interacting disciplines. Codified knowledge in related areas: financial, statutory, safety, management	**Range Statement:** Applicable knowledge includes: (a) Technical knowledge that is applicable to the specific practice area irrespective of location, supplemented by locally relevant knowledge, for example established properties of local materials. (b) A working knowledge of interacting disciplines. Codified knowledge in related areas: financial statutory, safety, management.
c) Jurisdictional knowledge includes legal and regulatory requirements as well as locally relevant codes of practice, as required for practice area: law of contract , contract administration, health and safety environmental, intellectual property, quality management, risk management, maintenance management, regulation, project management or construction management.	(c) Jurisdictional knowledge includes legal and regulatory requirements as well as locally relevant codes of practice, as required for practice area: law of contract, contract administration, health and safety, environmental, intellectual property, quality management, risk management, maintenance management , regulation, project management or construction management	(c) Jurisdictional knowledge includes legal and regulatory requirements as well as prescribed codes of practice	(c) Jurisdictional knowledge includes legal and regulatory requirements as well as prescribed codes of practice.

Professional Engineer	Professional Engineering Technologist Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 4: Manage part or all of one or more complex engineering activities.	**Competency Area 4:** Manage part or all of one or more broadly- defined engineering activities.	**Competency Area 4:** Manage part or all of one or more well-defined engineering activities	**Competency Area 4:** Manage part or all of one or more specifically-defined engineering activities
Competency Area 5: Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	**Competency Area 5:** Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	**Competency Area 5:** Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	**Competency Area 5:** Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.
Range Statement: Management and communication in complex engineering involves: • Planning activities; • Organising activities; • Leading activities and • Controlling activities. Communication relates to technical aspects and wider impacts of professional work. Audience includes peers, other disciplines, client and stakeholders audiences. Appropriate modes of communication must be selected.	**Range Statement:** Management and communication in broadly- defined engineering involves: • Planning activities; • Organising activities; • Leading activities and • Controlling activities. Communication relates to technical aspects and wider impacts of professional work. Audience includes peers, other disciplines, client and stake- holders audiences. Appropriate modes of communication must be selected. The engineering technologist is expected to perform the communication functions reliably and repeatedly.	**Range Statement:** Management and communication in well-defined engineering involves: • Planning activities; • Organising activities; • Leading activities and • Controlling activities. Communication relates to technical aspects and wider impacts of professional work. Audience includes peers, other disciplines, client and stakeholders audiences. Appropriate modes of communication must be selected. The Engineering Technician is expected to perform the communication	**Range Statement:** Management and communication in specifically-defined engineering involves: • Planning activities • Organising activities • Leading activities • Implementing activities • Controlling activities. Communication relates to technical aspects and wider impacts of work. Audience includes peers, other disciplines, client and stake-holders audiences. Appropriate modes of communication must be selected. The Specified Category practitioner is expected to perform the communication functions reliably
Competency Area 6: Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of complex engineering activities seeking to achieve sustainability.	**Competency Area 6:** Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of broadly defined engineering activities seeking to achieve sustainability.	**Competency Area 6:** Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of well-defined engineering activities seeking to achieve sustainability.	**Competency Area 6:** Recognise the foreseeable social, cultural, environmental and sustainability effects of specifically defined engineering activities generally.

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 7: Meet all legal and regulatory requirements and protect the health and safety of persons during all complex engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons during all broadly defined engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons during all well-defined engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements, protect the health and safety of persons and adhere to sustainable practices in the course of specifically defined engineering activities.
Range Statement: Impacts and regulatory requirements include: • Direct and indirect, immediate and long- term effects of engineering solutions; • Application of principles of sustainability; • Regulatory requirements that are explicit for the context and are generally applicable; • Persons whose health and safety are to be protected are both inside and outside the workplace.	**Range Statement:** Impacts and regulatory requirements include: • Requirements include both explicit regulated factors and those that arise in the course of particular work; • Impacts considered extend over the lifecycle of the project and include the consequences of the technologies applied; • Effects to be considered include direct and indirect, immediate and long-term related to the technology used; • Safe and sustainable materials, components and systems; • Regulatory requirements are explicit for the context in general; • Persons whose health and safety are to be protected are both inside and outside the workplace.	**Range Statement:** Impacts and regulatory requirements include: • Impacts to be considered are generally those identified within the established methods, techniques or procedures used in the practice area; • Regulatory requirements are prescribed; • Apply prescribed risk management strategies; • Effects to be considered and methods used are defined; • Prescribed safe and sustainable materials, components and systems; • Persons whose health and safety are to be protected are both inside and outside the workplace.	**Range Statement:** Impacts and regulatory requirements include: • Impacts to be considered are generally those identified within the established methods, techniques or procedures used in the specific practice area; • Regulatory requirements are prescribed; • Apply prescribed risk management strategies ; • Effects to be considered and methods used are defined; • Prescribed safe and sustainable materials, components and systems; • Prescribed maintenance protocols; • Persons whose health and safety are to be protected are both inside and outside the workplace.
Competency Area 8: Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically
Competency Area 9: Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of complex engineering activities.	**Competency Area 9:** Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of broadly defined engineering activities.	**Competency Area 9:** Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of well-defined engineering activities.	**Competency Area 9:** Exercise sound judgement in the course of specifically-defined engineering activities

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Range Statement: Situations in which judgement must be applied involve interactions between wide- ranging or conflicting technical, engineering or other issues. Judgement in decision making involves: • taking diverse, wide ranging risk factors into account; or • significant consequences in a range of contexts; or • wide ranges of interested and affected parties with widely varying needs.	**Range Statement:** Judgement is expected both within the application of technologies, in their wider impacts and when dealing with interfaces to other disciplines and technologies. Judgement in decision making involves: • taking several risk factors into account; or • significant consequences in technology application and related contexts; or • ranges of Interested and affected parties with widely varying needs.	**Range Statement:** Judgement is expected both within the application of methods, techniques and procedures and in assessing their immediate impacts. Judgement in decision making involves: • taking limited risk factors into account some of which may be ill- defined; or • consequences are in the immediate work context; or • identified set of interested and affected parties with defined needs to be taken into account.	**Range Statement:** Judgement is expected both within the application of category specific methods, techniques and specific procedures and in assessing their immediate impacts. Judgement in decision making involves: • taking specific category risk factors into account some of which may be ill-defined; or • consequences are in the immediate work context; or • identified set of interested and affected parties with defined needs to be taken into account.
Competency Area 10: Be responsible for making decisions on part or all of complex engineering activities.	**Competency Area 10:** Be responsible for making decisions on part or all of one or more broadly-defined engineering activities	**Competency Area 10:** Be responsible for making decisions on part or all of all of one or more well-defined engineering activities.	**Competency Area 10:** Be responsible for making decisions on part or all of one or more specifically-defined engineering activities
Range Statement: Responsibility exercised for competency areas of significant parts of a one or more complex engineering activity	**Range Statement:** Responsibility must be discharged for significant parts of one or more broadly-defined engineering activity.	**Range Statement:** Responsibility must be discharged for significant parts of a one or more well-defined engineering activity	**Range Statement:** Responsibility must be discharged for significant parts of one or more specifically-defined engineering *activity.*
Note 1: While actual responsibility for the work may not have been taken, due to statutory or other requirements, for a Professional Engineer to take the responsibility, evidence must be shown of responsible recommendations and judgement	**Note 1:** Demonstrating responsibility would work under the supervision of a competent engineering practitioner who takes the actual responsibility but is expected to perform as if he/she is in a responsible position.	**Note 1:** Demonstrating responsibility would be under supervision of a competent engineering practitioner but is expected to perform as if he/she is in a responsible position.	**Note 1:** Responsible for the evaluation of work output in a supervisory capacity.

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner Technologist
Competency Area 11: Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	**Competency Area 11:** Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	**Competency Area 11:** Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	**Competency Area 11:** Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.
Range Statement: Professional development involves: • Taking ownership of own professional development; • Planning own professional development strategy; • Selecting appropriate professional development activities; and • Recording professional development strategy and activities learning ability; while displaying independent.	**Range Statement:** Professional development involves: • Taking ownership of own professional development; • Planning own professional development strategy • Selecting appropriate professional development activities; and • Recording professional development strategy and activities learning ability; while displaying independent.	**Range Statement:** Professional development involves: • Taking ownership of own professional development; • Planning own professional development strategy • Selecting appropriate professional development activities; and • Recording professional development strategy and activities learning ability; while displaying independent.	**Range Statement:** Development involves: • Taking ownership of own development; • Planning own development strategy; • Selecting appropriate development activities; and • Recording development strategy and activities; displaying independent learning ability.

Table 2: The competency indicators to determine the competency in each of the competency areas required of a person registered as a professional engineer, professional engineering technologist, certificated engineer, professional engineering technician and a specified category practitioner.

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category
Competency Area 1: Define, investigate and analyse complex engineering problems.	**Competency Area 1:** Define, investigate and analyse broadly-defined engineering problems.	**Competency Area 1:** Define, investigate and analyse well-defined engineering problems	**Competency Area 1:** Define, investigate and analyse *specifically-defined engineering* problems (tasks)
Competency Indicator: A creative, systematic analysis of complex problems typified by the following performances is expected: 1. Define, investigate or analyse complex engineering problems; 2. Perform/assist in defining or formulating engineering problems, leading to an agreed definition to the problem to be addressed; 3. Perform/assist in investigating engineering problems including; i. Collecting; ii. Organising; and, iii. Evaluating information; 4. Perform/assist in analysing engineering problems : i. Use conceptualisation, abstraction, modelling; ii. Identify and justify assumptions, limitations, constraints, premises; using analytical methods both mathematical and non- mathematical; iii. Evaluate result of analysis, using judgement; iv. Express an understanding emerging from the analysis.	**Competency Indicator:** A structured analysis of broadly-defined problems typified by the following performances is expected: 1. Identify and formulate the proble agreeing with client on a problem statement. Analyse and evaluate information. 2. Use conceptualisation, abstraction and modelling. Justify judgement and assumptions made. Express understanding emerging from analysis. Competency Indicator: A structured analysis of broadly-defined problems typified by the following performances is expected: a) Identify and formulate the problem agreeing with client on a problem statement. b) Analyse and evaluate information. c) Use conceptualisation, abstraction and modelling. d) Justify judgement and assumptions made. Express understanding emerging from analysis.	**Competency Indicator:** A structured analysis of well-defined problems typified by the following performances is expected: 1. Identify and interpret the activity agreeing with client on a problem statement. 2. Analyse and clarify information, drawings, codes, procedures, etc. Revise and agree on acceptance criteria if necessary.	**Competency Indicator**: An analysis of specifically- defined engineering problems (tasks) typified by the following performances is expected: 1. Understand the activity agreeing with the client. 2. Analyse and clarify information, drawings, codes, procedures, etc.

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 2: Design or develop solutions to complex engineering problems	**Competency Area 2:** Design or develop solutions to broadly- defined engineering problems	**Competency Area 2:** Design or develop solutions to well-defined engineering problems.	**Competency Area 2:** Design or develop (plan) solutions to specifically- defined engineering problems (tasks).
Competency Indicator: This competency area is normally demonstrated after a problem analysis as defined in competency area 1. Working systematically to synthesise a solution to a complex problem, typified by the following performances is expected: 1. Analyse the design/planning/solution requirement and draw up detailed requirements specification; 2. Synthesise a range of potential solutions to problem or approaches to developing a solution; 3. Evaluate the potential approaches against requirements, including cost, and impacts outside requirements; 4. Present reasoned arguments and proposal for preferred option; 5. Fully develop design of selected option; 6. Evaluate resulting solution; 7. Produce design documentation for implementation.	**Competency Indicator:** This competency area is normally demonstrated after a problem analysis as defined in competency area 1. Working systematically to synthesise a solution to a broadly-defined problem, typified by the following performances is expected: 1. Analyse the requirement drawing up a design specification. 2. Synthesise potential solutions or approaches and evaluate; 3. Select the best complete solution and develop fully. Present reasoned arguments and proposal. Agree with client and produce design documentation for implementation;	**Competency Indicator:** This competency area is normally demonstrated after a problem analysis as defined in competency area 1.Working systematically to synthesise a solution to a well- defined problem, typified by the following performances is expected: 1. Develop and analyse alternative approaches to meeting the problem specification. Check impacts; 2. Select the best complete solution, seeking advice on aspects of the proposal or design process that fall outside established practice or standards. Agree with client;	**Competency Indicator:** This competency area is normally demonstrated after a problem (task) analysis as defined in competency area 1. Working systematically to reach a solution to a specifically- defined problem (task), typified by the following performances is expected: 1. Develop and analyse alternative approaches to do the task. Check impacts; 2. Select the best complete plan, seeking advice on aspects of the proposal or plan that fall outside established practice or standards. Agree with client;
Competency Area 3: Comprehend and apply advanced and local knowledge of the widely applied principles underpinning good practice that is specific to the jurisdiction in which the Engineer practices.	**Competency Area 3:** Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems and methodologies that is specific to the jurisdiction in which the Engineering Technologist practices.	**Competency Area 3:** Comprehend and apply knowledge that is embodied in established engineering practices that is specific to the jurisdiction in which the Engineering Technician practices.	**Competency Area 3:** Comprehend and apply knowledge embodied in established specific engineering practices and knowledge specific to the field in which he/she practices.

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Indicator: This competency area is normally demonstrated in the course of design, investigation or operations. 1. Display mastery of understanding of engineering principles, practice and technologies in the practice area; 2. Apply general and underpinning engineering knowledge to support analysis and provide insight; 3. Use a fundamentals-based, first principles analytical, approach building models as required; 4. Display working knowledge of areas that interact with the practice area 5. Display a working knowledge of interacting disciplines (engineering and other) to underpin teamwork; 6. Apply related knowledge: financial, statutory, safety, management	**Competency Indicator:** This competency area is normally demonstrated in the course of design, investigation or operations. 1. The thorough understanding and application of engineering principles to support analysis; 2. The use of specialised knowledge in an analytical approach and application of related knowledge in broadly-defined engineering activities	**Competency Indicator:** This competency area is normally demonstrated in the course of design, investigation or operations. 1. The use of codified underpinning educational knowledge in practical well-defined activities; 2. The understanding of knowledge expressed in well-defined procedures and techniques.	**Competency Indicator:** This competency area is normally demonstrated in the course of planning investigation or operations 1. The use of codified underpinning educational knowledge in practical specifically-defined engineering activities; 2. The understanding of knowledge expressed in specifically-defined procedures and techniques
Competency Area 4: Manage part or all of one or more complex engineering activities	**Competency Area 4:** Manage part or all of one or more broadly- defined engineering activities	**Competency Area 4:** Manage part or all of one or more well-defined engineering activities	**Competency Area 4:** Manage part or all of one or more specifically- defined engineering
Competency Indicator: The display of personal and work process management abilities are expected: 1. Manage complex engineering activities 2. Pian, organise, lead and control complex engineering activities; 3. Manage him- or herself; 4. Participate effectively in a team environment; 5. Manage people, and/or work priorities, and/or work processes and/or resources; 6. Demonstrate knowledge of finance as it is applied in engineering; 7. Demonstrate knowledge of the conditions and operations of contract 8. Demonstrate the ability to establish and maintain professional and business thinking	**Competency Indicator:** The display of personal and work process management abilities are expected: 1. Manage broadly-defined engineering activities 2. Participate effectively in a team environment 3. Manage self-people, and/or work priorities, and/or work processes and/or resources; 4. Demonstrate knowledge of finance as it is applied to engineering 5. Demonstrate knowledge of the conditions and operations of contract; 6. Demonstrate the ability to establish and maintain professional and business relationships.	**Competency Indicator:** The display of personal and work process management abilities are expected 1. Manage self, work priorities, processes & resources 2. Participate effectively in a team environment	**Competency Indicator:** The display of personal and work process management abilities are expected: 1. Manage self, work priorities, processes and resources; 2. Participate effectively in a team environment.
Competency Area 5: Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	**Competency Area 5:** Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	**Competency Area 5:** Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	**Competency Area 5:** Communicate clearly with others in the course of specifically defined engineering activities.

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Indicator: Demonstrates effective communicated by: 1. Writing clear, concise, effective, technically correct reports using a structure and style which meets communication objectives and user/audience requirements; 2. Reading and evaluating technical and legal matters relevant to the function of a Prof engineer 3. Receiving instructions, ensuring correct interpretation 4. Issuing clear instructions to subordinates using appropriate language and communication aids, ensuring that language and other communication barriers are overcome; 5. Making oral presentations using structure style, language, visual aids and supporting documents appropriate to the audience and purpose.	**Competency Indicator:** Demonstrates effective communication by: 1. Writing clear, concise, effective, technically correct reports using a structure and style which meets communication objectives and user/audience requirements; 2. Reading and evaluating technical and legal matters relevant to the function of a Prof Engineering Technologist 3. Receiving instructions, ensuring correct interpretation; 4. Issuing clear instructions to subordinates using appropriate language and communication aids, ensuring that language and other communication barriers are overcome 5. Making oral presentations using structure, style, language, visual aids and supporting documents appropriate to the audience and purpose.	**Competency Indicator:** Demonstrates effective communication by: 1. Writing clear, concise, effective, technically correct reports 2. Issuing clear instructions to subordinates and present point of view effectively	**Competency Indicator:** Demonstrates effective communication by: 1. Writing clear, concise, effective, technically correct reports. 2. Issuing clear instructions to subordinates and present point of view effectively.
Competency Area 6: Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of complex engineering activities seeking to achieve sustainability.	**Competency Area 6:** Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of broadly defined engineering activities seeking to achieve sustainability.	**Competency Area 6:** Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of well-defined engineering activities seeking to achieve sustainability.	**Competency Area 6:** Recognise the foreseeable social, cultural, environmental and sustainability effects of specifically defined engineering activities generally.
Competency Indicator: This competency area is normally displayed in the course of analysis and solution of problems, by typically: 1. Identifying interested and affected parties and their expectations ; 2. Identifying interactions between technical and social cultural and environmental factors 3. Identifying environmental impacts of the engineering activity; 4. Identifying sustainability issues; 5. Proposing and evaluating measures to mitigate negative effects of engineering activity 6. Communicating with stakeholders	**Competency Indicator**: This competency area is normally displayed in the course of analysis and solution of problems, by typically: 1. Identifying interested and affected parties and their expectations; 2. Identifying interactions between technical and social cultural and environmental factors; 3. Identifying environmental impacts of the engineering activity 4. Identifying sustainability issues; 5. Proposing and evaluating measures to mitigate negative effects of engineering activity; 6. Communicating with stakeholders	**Competency Indicator**: This competency area is normally displayed in the course of analysis and solution of problems, by typically: 1. Identifying affected parties and environmental impacts of the engineering activity; 2. Proposing mitigating measures and communicating with stakeholders	**Competency Indicator**: This competency area is normally displayed in the course of evaluating and planning tasks, by typically 1. Identifying affected parties and environmental impacts of the engineering activity; 2. Proposing mitigating measures and communicating on measures with stakeholders

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 7: Meet all legal and regulatory requirements and protect the health and safety of persons during all complex engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons during all broadly defined engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons during all well-defined engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements, protect the health and safety of persons and adhere to sustainable practices in the course of specifically defined engineering activities.
Competency Indicator: 1. Identifying applicable legal, regulatory and health and safety requirements for the engineering activity; 2. Identifying health and safety requirements applicable for the engineering activity 3. Assistance or awareness of the selection of safe and sustainable materials, components and systems; 4. Assistance or awareness of recognising and identifying risk and applying accepted risk management strategies	**Competency Indicator:** 1. .Identifying applicable legal, regulatory and health and safety requirements for the engineering activity; 2. Identifying health and safety requirements applicable for the engineering activity 3. Assistance or awareness of the selection of safe and sustainable materials, components and systems; 4. Assistance or awareness of recognising and identifying risk and applying accepted risk management strategies.	**Competency Indicator:** 1. Identifying applicable legal, regulatory and health and safety requirements for the engineering activity 2. Managing risks and use safe and sustainable materials, components and systems, seeking advice when necessary	**Competency Indicator:** 1. Identifying applicable legal, regulatory and health and safety requirements for the specifically-defined engineering activity 2. Managing risks and use safe and sustainable materials, components and systems, seeking advice when necessary
Competency Area 8: Conduct engineering activities ethically.	**Competency Area 8:** Conduct engineering activities ethically.	**Competency Area 8:** Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically
Competency Indicator: A professional approach must be demonstrated at all times by: i. Knowledge of ECSA Code of Conduct; i. Member/active participation in activities of a recognised VA; ii. Understanding of Professional Society structures/Network/interaction Sensitivity to ethical issues and the adoption of a systematic approach to resolving these issues is expected, typified by: 1. Identifying the central ethical problem 2. Identifying affected parties and their interest 3. Searching for possible solutions for the dilemma; 4. Evaluating each solution using the interests of those involved, accorded suitable priority; 5. Selecting and justifying the solution that best resolves the dilemma	**Competency Indicator:** A professional approach must be demonstrated at all times by: i. Knowledge of ECSA Code of Conduct; i. Member/active participation in activities of a recognised VA; ii. Understanding of Professional Society structures/Network/interaction Sensitivity to ethical issues and the adoption of a systematic approach to resolving these issues is expected, typified by: 1. Identifying the central ethical problem 2. Identifying affected parties and their interest 3. Searching for possible solutions for the dilemma; 4. Evaluating each solution using the interests of those involved, accorded suitable priority 5. Selecting and justifying the solution that best resolves the dilemma	**Competency Indicator:** Sensitivity to ethical issues and the adoption of a systematic approach to resolving these issues is expected, typified by: 1. Identifying ethical problems and affected parties and their interests; 2. Compliance with ECSA's Code of Conduct.	**Competency Indicator:** Sensitivity to ethical issues and the adoption of a systematic approach to resolving these issues is expected, typified by 1. Awareness of ethical problems and affected parties and their interests; 2. Compliance with ECSA's Code of Conduct

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 9: Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of complex engineering activities.	**Competency Area 9:** Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of broadly defined engineering activities.	**Competency Area 9:** Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of well-defined engineering activities.	**Competency Area 9:** Exercise sound judgement in the course of specifically defined engineering activities.
Competency Indicator: Exhibition of sound engineering judgement is expected by: 1. Considering several factors, some of which may not be well-defined or unknown; 2. Considering the interdependence interactions, and relative importance of factors 3. Foreseeing consequences of actions 4. Evaluating a situation in the absence of full evidence 5. Drawing on experience and knowledge	**Competency Indicator:** Exhibition of judgement is expected by: 1. Considering several factors, some of which may not be well-defined or unknown; 2. Considering the interdependence interactions, and relative importance of factors 3. Foreseeing consequences of actions 4. Evaluating a situation in the absence of full evidence 5. Drawing on experience and knowledge	**Competency Indicator:** Exhibition of judgement is expected by: 1. Considering a limited number of factors and their independence 2. Foreseeing consequences of actions , evaluating a situation in the absence of full evidence	**Competency Indicator:** Exhibition of judgement is expected by: 1. Considering specific factors applicable to the category and how they are interrelated; 2. Foreseeing consequences of actions, evaluating a situation in the absence of full evidence
Competency Area 10: Be responsible for making decisions on part or all of complex engineering activities.	**Competency Area 10:** Be responsible for making decisions on part or all of one or more broadly-defined engineering activities	**Competency Area 10:** Be responsible for making decisions on part or all of all of one or more well-defined engineering activities	**Competency Area 10:** Be responsible for making decisions on part or all of one or more specifically-defined engineering activities
Competency Indicator: Responsibility is displayed by the following performance: 1. Having due regard to technical social, environmental and sustainable development consideration 2. Seeking advice from a responsible authority on any matter considered to be outside area of competence 3. Making decisions on and take responsibility for one or more complex engineering activity	**Competency Indicator:** Responsibility is displayed by the following performance: 1. Having due regard to technical social, environmental and sustainable development consideration 2. Seeking advice from a responsible authority on any matter considered to be outside area of competence 3. Making decisions on and take responsibility for one or more broadly- defined engineering activity	**Competency Indicator:** Responsibility is displayed by the following performance Demonstrating a professional approach at all times by applying theory to justify solutions Taking advice from a responsible authority on any matter considered to be outside applicable standards and codes; Evaluating work output, revising as required and taking responsibility' for this work output	**Competency Indicator:** Responsibility is displayed by the following performance: 1. Demonstrating a professional approach at all times by applying knowledge to justify actions; 2. Taking advice from a responsible authority on any matter considered to be outside applicable standards and codes 3. Evaluating work output, revising as required and taking responsibility' for this work output

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 11: Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	**Competency Area 11:** Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	**Competency Area 11:** Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	**Competency Area 11:** Undertake independent learning activities sufficient to maintain and extend his or her competence.
Competency Indicator: Self-development managed by typically; 1. Planning own professional development strategy 2. Selecting appropriate professional development activities 3. Keeping record of professional development strategy and activities 4. Displaying independent learning ability 5. Completing professional development	**Competency Indicator:** Self-development managed by typically; 1. Planning own professional development strategy selecting appropriate professional developmental activities 2. Keeping record of professional development displaying independent learning ability	**Competency Indicator:** Self-development managed by typically: 1. Planning own professional development strategy selecting appropriate professional development activities 2. Keeping record of professional development displaying independent learning ability	**Competency Indicator:** Self-development is managed by typically 1. Planning own development strategy selecting appropriate development activities; 2. Keeping record of development displaying independent learning ability

4. PERFORMANCE OF CORE SERVICE IN PRACTISE AREA

(1) Identified engineering work in any engineering discipline consists of core services in certain practise areas.

(2) For the purposes of section 26(3)(a) of the Engineering Profession Act, 2000 (Act No.46 of 2000), work identified for persons registered in one of the categories in section 18(1)(a) or (c) of the Engineering Profession Act, 2000 (Act No.46 of 2000) includes the core services for the practice areas referred to in clauses 5 to 16.

(3) The core services and practise areas listed in clauses 5 to 16 are not exhaustive and any similar activity that is undertaken in order to perform a core service in compliance with an agreement to provide engineering work in an engineering discipline which work is not identified in clauses 5 to 16 is deemed to be a core service identified in clauses 5 to 16.

5. IDENTIFIED ENGINEERING WORK IN AERONAUTICAL ENGINEERING DISCIPLINE

1) The core services in the aeronautical engineering discipline consist of the analysis, planning, design and development, manufacture, construction, operation and maintenance, academic work of all types of flight vehicles, including fixed-wing aircraft, helicopters, sail planes, airships, spacecraft and missiles, based on engineering sciences underlying flight dynamics, aerospace structures and propulsion systems.
2) The core services in the aeronautical engineering discipline are performed in the following practise areas:
   (a) aircraft design;
   (b) aircraft structures;
   (c) aircraft propulsion systems
   (d) aerodynamics;
   (e) avionics;
   (f) aero-elasticity;
   (g) stability and control;
   (h) aircraft systems including hydraulic, pneumatic and avionic systems;

(i) wind tunnel testing;
(j) flight testing;
(k) aircraft performance monitoring;
(l) airport/airfield management; and
(m) certification and safety programmes.

6. IDENTIFIED ENGINEERING WORK IN AGRICULTURAL ENGINEERING DISCIPLINE

1) The core services in agricultural engineering consist of the analysis, planning, design and development, manufacture, construction, management, operation, and maintenance of agricultural machinery, mechanisation, production and processing, academic work and natural resource management through the application of engineering sciences.
2) The core services in the agricultural engineering discipline are performed in the following practise areas:
   (a) agricultural energy engineering;
   (b) agricultural renewable energy engineering;
   (c) agricultural product processing engineering;
   (d) agricultural structures and facilities engineering;
   (e) agricultural waste handling and management ;
   (f) aquaculture engineering;
   (g) mechanisation engineering;
   (h) irrigation engineering;
   (i) hydrology and agricultural water use management ;
   (j) natural resources engineering;
   (k) food engineering;
   (l) environmental engineering; and
   (m) rural infrastructure engineering.

7. IDENTIFIED ENGINEERING WORK IN CHEMICAL ENGINEERING DISCIPLINE

1) The core services in chemical engineering consist of the analysis, planning, design

and development, manufacture, construction, management, operation, academic work and maintenance of industrial-scale processes that convert raw and recycled materials to products through chemical and physical processes.

2) The core services in the chemical engineering discipline are performed in the following practise areas:
   (a) Processes where hazardous substances are present in significant quantities;
   (b) processes where chemical reactions present particular hazards;
   (c) processes involving advanced water treatment for potable water;
   (d) advanced process control; and process simulation

Research and development:

- Conducting research, advising on and developing broadly defined, commercial-scale processes to produce substances and items such as petroleum derivatives, chemicals, food and drink products, pulp and paper, pharmaceuticals and synthetic materials such as polymers, plastics and cement, in addition to incorporating energy and mineral processing and water treatment.

- Performing tests throughout stages of production to determine degree of control over process variables, which include composition, temperature, density, specific gravity and pressure.

- Performing laboratory studies of steps in the manufacturing of new products and testing proposed processes by employing small-scale operations such as a pilot plant. This type of work may be performed in research and product-development centres of business organisations or at academic institutions. Applicants must undertake research and development work that is predominantly Chemical Engineering in nature, and this work should include an in-depth application of the various aspects of Chemical Engineering.

Safety Engineering:

- Participating in and leading risk assessment studies such as hazard and operability (HAZOP) studies during phases of design or operation of equipment, systems and plants.
- Establishing control standards and procedures to ensure the safety of production operations and the safety of workers operating equipment or working in close proximity to on-going chemical reactions or processes.

- Developing and implementing safety protocols and procedures to ensure compliance with regulatory standards.

Process Design and Development

- Designing process plants and equipment and devising processes for manufacturing products while meeting targeted efficiencies.
- Optimising processes for efficiency, safety and sustainability.
- Specifying chemical production methods, equipment, materials and quality standards and ensuring that all conform to specifications and accepted industry practices and standards.
- Collaborating with cross-functional teams, including engineers, scientists and technicians within Chemical Engineering and within other engineering disciplines to develop and implement process improvements.
- Conducting economic evaluations and feasibility studies for new projects or process modifications.

Product Development and Quality Control

- Performing laboratory studies of steps in the manufacturing of new products and testing proposed processes by employing small-scale operations such as a pilot plant.

Plant Operation and Management

- Developing operating procedures to be employed during design and operating phases, including start-up, shutdown and emergency procedures, preparing of cost estimates such as (CAPEX, OPEX and lifecycle) and production progress reports for management.
- Overseeing plant operation and/or management.
- Optimising processes and products for improvement of prescribed performance indices such as profitability, sustainability, energy consumption, environmental sustainability and carbon efficiency.
- Conducting process troubleshooting and problem-solving to identify and resolve operational issues.

- Providing technical support and guidance to production personnel to ensure efficient and safe operation of chemical processes.
- Developing and implementing process optimisation strategies to improve product quality, yield and efficiency.
- Monitoring and analysing process data to identify trends, deviations, and opportunities for improvement.
- Developing and managing budgets and costs associated with engineering works.
- Training and mentoring junior staff members.
- Evaluating social, environmental, statutory and legal considerations or the modification of existing plants.

Environmental Protection

- Conducting environmental impact assessments and developing strategies for waste management and pollution prevention.

Process Control and Optimisation

- Developing broadly defined process control philosophies and/or advanced process control systems.

Consulting and Entrepreneurship

- Managing projects, including coordinating, and overseeing the work of technicians, operators, and other external service providers such as suppliers to ensure adherence to project timelines and budgets.
- Conducting economic evaluations and feasibility studies for new projects or process modifications.

Construction and Project Management

- Construction process, managing projects and ensuring that designs are implemented correctly according to scope. This can involve coordinating with contractors, conducting site inspections, and managing budgets and timelines.

8. IDENTIFIED ENGINEERING WORK IN CIVIL ENGINEERING DISCIPLINE

1) The core services in the civil engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management, maintenance, academic work and operation of works comprising –
   (a) a structure such as a building, dam, bridge, road, railway, runway or pipeline;
   (b) a transportation, water supply and treatment, drainage and sewerage system;
   (c) the result of an operation such as dredging, earthworks and a geotechnical process;
   (d) waste disposal; and
   (e) sea defences and coastal protection; through the application of civil engineering sciences.
2) The core services in the civil engineering discipline are performed in the following practise areas:
   (a) structural engineering work;
   (b) geotechnical engineering work;
   (c) transportation engineering work;
   (d) environmental engineering work;
   (e) hydraulic engineering work;
   (f) municipal engineering work.
3) Structural engineering work is the buildings, dams bridges, roads, highways runways, harbours, railways, relating to the structural safety and serviceability of both the temporary and permanent works associated with structures that provide shelter, carry loads or retain materials and fluids.
4) Geotechnical engineering work is foundations, earthworks, excavations, ground improvement and geotechnical processes, subsurface investigation and sampling.
5) Transportation engineering work involves transportation systems, including roads, railways, waterways, ports, harbours, airports, and all associated works such as yards, docks, lighthouses, rolling stock, traffic engineering, geometric design—horizontal curves, vertical curves, and sight distance.
6) Environmental engineering work is solid waste disposal, soil conservation works, and contaminated land remediation.

7) Hydraulic engineering work is hydraulic systems including water resources and supply, pipelines, canals, water treatment and supply, stormwater and drainage works, sewerage systems; sanitation, waste disposal and coastal engineering. Municipal engineering work is services such as water treatment and supply - demands, hydraulic loading, storages (raw and treated water), sewerage works, transport building services, and urban development as indicated above.

8) Typical tasks that Civil Engineers, Technologists and/or Technicians may undertake include the following:

a) Conducting research and developing new or improved theories and methods related to civil engineering.

b) Advising on and designing infrastructures such as bridges, dams, harbours, roads, airports, stadiums, railways, canals, pipelines, treatment works, waste-disposal and flood-control systems and residential, commercial, industrial and other large buildings.

c) Determining and specifying construction methods, materials and quality standards and directing construction work.

d) Establishing control systems to ensure efficient functioning of infrastructure as well as safety and environmental protection.

e) Organising and directing maintenance and repair of existing civil engineering infrastructure.

f) Analysing the behaviour of soil and rock when placed under pressure by proposed structures and designing structural foundations.

g) Analysing the stability of structures and testing the behaviour and durability of materials used in their construction.

h) Managing finances which involves preparing the budget, control line items in the budget and proper financial control.

i) Executing the design elements according to the specifications and approved construction drawings during the construction stage

9. IDENTIFIED ENGINEERING WORK COMPUTER ENGINEERING DISCIPLINE

1) The core services in the computer engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management, maintenance, academic work and operation of works comprising of:

(a) Conducting research and developing new or improved theories and methods relating to Computer Systems Engineering

(b) Advising on and designing computer-based systems or components, systems equipment, software and distribution centres

(c) Specifying production or installation methods, specifying materials, quality and safety standards and directing production and installation of computer-based products, software and systems

(d) Supervising, controlling, developing and monitoring the operation and maintenance of computer-based systems, software, networks and equipment

(e) Developing and implementing test procedures for computer-based systems, software, networks, programmes and equipment

(f) Organising and directing the maintenance and repair of existing computer-based systems, programmes and equipment

(g) Researching and advising on computer-based equipment and software

(h) Planning and designing computer-based communication networks.

(i) Performing system analyses together with designing and developing computer-based systems

(j) Implementing these computer-based systems through appropriate choice of hardware and managing the development of the necessary software

(k) Determining manufacturing methods for computer-based systems, networks and equipment.

10. IDENTIFIED ENGINEERING WORK IN ELECTRICAL ENGINEERING DISCIPLINE

1) The core services in the electrical engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management, operation, academic work and maintenance of materials, components, plant and systems for generating, transmitting, distributing and utilising -

(a) electrical energy;

(b) electronic devices, apparatus and control systems for industrial systems, bio-medical and consumer products and processes; and

(c) computing, communication and software for critical applications instrumentation and control of processes, through the application of electrical, electromagnetic and information engineering sciences.

2) The core services in the electrical engineering discipline are performed in the following primary practise areas:
   (a) electrical power engineering work;
   (b) electronic engineering work;
   (c) telecommunications engineering work;
   (d) computer and software engineering work.

3) Electrical power engineering work includes the following practise areas:
   (a) conducting research and developing new or improved theories and methods related to electrical power engineering;
   (b) advising on and designing power stations and systems which generate, transmit and distribute electrical power;
   (c) specifying Instrumentation, measurement and control of equipment for the monitoring and control of electrical generation, transmission and distribution systems;
   (d) supervising, controlling, developing and monitoring the operation and maintenance of electrical generation, transmission and distribution systems;
   (e) advising on and designing systems for electrical motors, electrical traction and other equipment or electrical domestic appliances;
   (f) specifying electrical installation and application in industrial and other buildings and objects;
   (g) establishing control standards and procedures to monitor the performance and safety of electrical generating and distribution systems, motors and equipment;
   (h) determining manufacturing methods for electrical systems as well as the maintenance and repair of existing electrical systems, motors and equipment;
   (i) design and development of electrical apparatus.

4) Electronic engineering work includes the following practise areas:
   (a) conducting research and developing new or improved theories and methods related to electronics engineering;
   (b) advising on and designing electronic devices or components, circuits, semi-conductors and systems;
   (c) specifying production or installation methods, materials and quality standards and

directing production or installation work of electronic products and systems;

(d) supervising, controlling, developing and monitoring the operation and maintenance of electronic equipment and systems;

(e) establishing control standards and procedures to ensure efficient functioning and safety of electronic systems and equipment;

(f) organising and directing maintenance and repair of existing electronic systems and equipment;

(g) designing electronic circuits and components for use in fields such as aeronautical guidance and propulsion control, acoustics or instruments and control;

(h) determining manufacturing methods for electronic systems as well as the maintenance and repair of existing electronic systems and equipment;

(i) researching and advising on radar, telemetry and remote control systems, microwaves and other electronic equipment;

(j) designing and developing signal processing algorithms and implementing these through appropriate choice of hardware and software;

(k) developing apparatus and procedures to test electronic components, circuits and systems;

(l) designing, specifying and implementing Control and Instrumentation of plant and processes;

(m) designing, specifying, control and monitoring of equipment for fire and safety in plant and factories;

(n) robotics and process control of manufacturing plant;

(o) energy efficiency PV.

5) Telecommunications engineering work is a broad specialisation of electrical engineering encompassing the design, construction and management of systems that carry out the transmission, processing and storage of information as electrical or optical signals and the control services based on this capability and includes the following practice areas:

(a) conducting research and developing new or improved theories and methods related to telecommunications engineering;

(b) advising on and designing telecommunications devices or components, systems,

equipment and distribution centres;

(c) specifying production or installation methods, materials, quality and safety standards and directing production or installation work of telecommunications products and systems;

(d) supervising, controlling, developing and monitoring the operation and maintenance of telecommunication systems. networks and equipment;

(e) determining manufacturing methods for telecommunication systems as well as the maintenance and repair of existing telecommunication systems, networks and equipment;

(f) organising and directing maintenance and repair of existing telecommunication systems, networks and equipment;

(g) researching and advising on telecommunications equipment;

(h) planning and designing communications networks based on wired fibre optical and wireless communication media;

(i) designing and developing signal processing algorithms and implementing these through appropriate choice of hardware and software;

(j) designing telecommunications networks and radio and television distribution systems, including both cable and over-the-air;

(k) determining manufacturing methods for computer-based systems as well as the maintenance and repair of existing computer-based systems, networks and equipment.

11. IDENTIFIED ENGINEERING WORK IN INDUSTRIAL ENGINEERING DISCIPLINE

1) The core services in the industrial engineering discipline consist of the analysis, design and development, planning, manufacture, construction, management, maintenance, operation, improvement, academic work and installation of integrated systems of processes, people, materials, information, equipment and energy, to ensure the effective and efficient delivery of quality goods and services through the application of industrial engineering sciences.
2) A registered person who performs work in the industrial engineering discipline investigates and reviews the utilisation of personnel, facilities, equipment and

materials, current operational processes and established practices, to recommend improvement in the efficiency of operations in a variety of commercial, industrial and production environments.

3) The core services in the industrial engineering discipline are performed in the following practice areas:

a) **Research and development:** All areas of systems and processes at the different levels of performance.
b) **Process design and development:** Designing processes and systems for manufacturing products while meeting targeted efficiencies.
c) **Operations and management:** Developing operating procedures to be employed during design and operating phases, including start-up, shutdown and emergency procedures, management of resources and production reporting.
d) **Quality management:** Developing quality assurance and process control systems to manage and optimise processes.
e) **Consulting, projects and entrepreneurship:** Managing projects, including management of resources and internal and external service providers to ensure adherence to project timelines and budgets.
f) **Supply chain and logistics:** Involvement in design and management of systems to create value for all participants in the supply chain. This includes processes from product design, to sourcing, manufacturing, distribution and customer service, network design, optimisation, information sharing, detailed and long-term planning.

12. IDENTIFIED ENGINEERING WORK IN MECHANICAL ENGINEERING DISCIPLINE

1) The core services in the mechanical engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management, academic work, operation and maintenance of materials, steel structures, components, machines plant and systems for:
(a) lifting, hoisting and materials handling. turbines, pumps and fluid power, heating, cooling, ventilating and air conditioning;
(b) fuels, combustion, engines, steam plant, turbines;

(c) automobiles, trucks and special vehicles;

(d) fire protection;

(e) nuclear energy generation;

(f) steel structures, through the application of engineering sciences: mechanics, solid mechanics, thermodynamics, fluid mechanics.

2) The core services in the mechanical engineering discipline are performed in the following practice areas:

a) advising on and designing machinery and tools for manufacturing, mining, construction, agricultural, and other industrial purposes;

b) advising on and designing steam, internal combustion, and other non-electric motors and engines used for propulsion of railway locomotives, road vehicles, or aircraft or for driving industrial or other machinery;

c) advising on and designing hulls, superstructures, and propulsion systems of ships; mechanical plants and equipment for the release, control, and use of energy, heating, ventilation, and refrigeration systems, steering gear, pumps, pipe work, valves, and other associated mechanical equipment;

d) advising on and designing airframes, undercarriages, and other equipment for aircraft in addition to suspension systems, brakes, vehicle bodies, and other components of road vehicles;

e) advising on and designing non-electrical parts of apparatus or products such as computers, precision instruments, and consumer appliances;

f) establishing control standards and procedures to ensure efficient functioning and safety of machines, machinery, tools, motors, engines, and industrial plant equipment or systems; and

g) ensuring that equipment operation and maintenance comply with design specifications and safety standards.

13. IDENTIFIED ENGINEERING WORK IN MECHATRONIC ENGINEERING DISCIPLINE

1) The core services in the mechatronic engineering discipline consist of the analysis, planning, academic work, design, manufacture, construction, management, operation and maintenance of materials, components, plant and systems for:

(a) Mechatronic devices

(b) Factory Automation

(c) Process Automation.

Primary Practice Areas: The core services in the mechatronic engineering discipline are performed in the following primary practise areas:

(d) Mechatronic Devices Control Systems

(e) Factory Automation

(f) Process Automation

Other Practice Areas

Factory Automation

Factory automation engineering work is a broad specialisation of mechatronics engineering encompassing the design, construction and management of instrumentation, measurements, automation, optimisation, control, and optimisation of industrial factories which includes all discrete industrial processes such as automotive manufacturing etc.

It includes the following practise areas:

(g) Conducting research and developing new or improved theories and methods related to the instrumentation, measurement, control and automation within factory automation;

(h) specifying production or installation methods, materials and quality standards and directing production or installation work of automation products and systems;

(i) supervising, controlling, developing and monitoring the operation and maintenance of automation equipment and systems;

(j) establishing control standards and procedures to ensure efficient functioning and safety of automation systems and equipment;

(k) organising and directing maintenance and repair of existing automation systems and equipment;

(l) designing, specifying and implementing automation systems of factories

(m) automation systems and processes of manufacturing plants

Process Automation

Process automation engineering work is a broad specialisation of mechatronics engineering encompassing the design, construction and management of instrumentation, measurements,

automation, optimisation, control, and optimisation of industrial process plants which includes chemical, petrochemical, nuclear power generation facilities etc.

It includes the following practice areas:

(n) Conducting research and developing new or improved theories and methods related to process automation engineering;
(o) advising on and designing process automation devices or components, systems, equipment and distribution centres;
(p) specifying production or installation methods, materials, quality and safety standards and directing production or installation work of process automation products and systems;
(q) supervising, controlling, developing, and monitoring the operation and maintenance of process automation systems. networks and equipment.
(r) determining manufacturing methods for process automation systems, establishing control standards and procedures to ensure efficient functioning and safety of automation systems and equipment, also in classified areas.
(s) organising and directing maintenance and repair of existing process automation devices, equipment, and systems.
(t) designing process automation configurations for the optimisation of process plants, control strategies, instrumentation and configurations;
(u) determining manufacturing methods for process automation systems as well as the maintenance and repair of existing process automation systems and equipment;
(v) researching and advising on process control strategies, configurations, instrumentation, automation strategies, and remote control and monitoring systems;
(w) designing and developing signal processing algorithms and implementing these through appropriate choice of hardware and software;
(x) developing apparatus and procedures to test process automation components, circuits and systems;
(y) designing, specifying and implementing automation, control and Instrumentation of process plants
(z) designing, specifying, control and monitoring of automation systems for fire and

safety in process plants;

(aa) design communications networks for all instruments, control and automation devices in a process plant.

Mechatronic Devices

Mechatronic devices are systems that synergistically combine mechanical engineering, electronics, computer science, and control engineering to create functional and adaptable products. These devices typically involve the integration of sensors, actuators, microcontrollers, and software to perform complex tasks with precision and efficiency. The goal of mechatronics is to improve the functionality and performance of mechanical systems by embedding them with electronic and computational intelligence. Examples of mechatronic devices include robotic arms, automated guided vehicles, and modern automotive systems like anti-lock braking systems (ABS) and electronic stability control (ESC).

It includes the following practise areas:

(a) Conducting research and developing new or improved theories and methods related to improve the functionality and performance of mechanical systems
(b) specifying production or installation methods of automated mechatronic devices and systems
(c) supervising, controlling, developing and monitoring the operation and maintenance of mechatronic equipment and systems;
(d) establishing control standards and procedures to ensure efficient functioning and safety of mechatronic systems and equipment;
(e) organising and directing maintenance and repair of existing mechatronic systems and equipment;
(f) designing, specifying and implementing mechatronic systems of factories

14. IDENTIFIED ENGINEERING WORK IN METALLURGICAL ENGINEERING DISCIPLINE

1) The core services in the metallurgical engineering discipline consist of either-

(a) physical metallurgical engineering which is the analysis, design and development, academic work production, characterisation, failure analysis, and application of

materials, including metals, for engineering applications based on an understanding of the properties of matter and engineering requirements; or

(b) extractive metallurgical engineering which is the research, planning, design and development, academic work, developing and operating commercial-scale processes for the extraction of metals or intermediate compounds from ores by chemical or physical processes, including those at high temperatures, the operation and optimisation of process plants, through the application of metallurgical engineering sciences.

2) The core services of a physical metallurgical engineer in the metallurgical engineering discipline are performed in the following practice areas:

(a) develop, control and advise on processes used for casting, alloying, heat treating or welding of metals, alloys and other materials to produce commercial metal products or develop new alloys, materials and processes, evaluate and specify materials for engineering applications, and do quality control and failure analyses;

(b) investigate properties of metals and alloys, develop new alloys and advise on and supervise technical aspects of metal and alloy manufacture, processing, use and manufacturing;

(c) do residual life evaluations and predictions, failure analyses, and prescribe remedial actions to avoid material failures.

3) The core services of an extractive metallurgical engineer in the metallurgical engineering discipline are performed in the following practice areas:

(a) Conduct research and develop methods of extracting metals from their ores and advising on their application.

(b) Design, development and implementation of complex process projects.

(c) Operation and optimisation of process plants or commercial-scale processes.

15. IDENTIFIED ENGINEERING WORK IN MINING ENGINEERING DISCIPLINE

1) The core services in the mining engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management,

academic work, operation, maintenance and rehabilitation of works for the extraction of minerals from natural deposits on the earth's surface underground or under water through the application of mining engineering science.

2) A person who performs the identified work holds a statutory certificate of competency issued in terms of the Mines and Safety Act of 1996 as amended.

3) The core services in the mining engineering discipline are performed in the following practice areas:

(a) conducting fundamental or operational research and advising on occupational health and safety and environmentally responsible mineral excavation methodology, processes and systems;
(b) designing and specifying mineral excavation processes, application of mining resources and mining technical support services required, occupational health, safety and environmental considerations and quality assurance;
(c) establish production and operational control standards and procedures to ensure compliance with legislation and site-specific requirements;
(d) manage occupational health, safety and environmentally-related hazards and accompanying risks;
(e) performing tests throughout the life-cycle stages and mineral excavation processes to determine the degree of control over variables identified during the strategic and tactical mine design and planning processes;
(f) develop appropriate site-specific risk management policies, procedures and standards;
(g) prepare pre-feasibility and feasibility reports and life-of-mine exploitation strategies and plans, business plans and bankable documents based on site- specific assumptions, premises, constrains and best practice standards;
(h) converting mineral resources into mineable reserves;
(i) performing mineral asset valuations;
(j) managing mineral assets; and
(k) education and training of candidate mining engineering practitioners.

16. IDENTIFIED ENGINEERING WORK FOR PROFESSIONAL CERTIFICATED ENGINEER

1) For the purposes of section 26(3)(a) of the Engineering Profession Act, work identified for persons registered in terms of section 18(1)(a)(iii) of the Engineering Profession Act includes the core services for the practice areas referred to in sub-section (4) provided that the person so registered holds a statutory certificate of competency issued in terms of the Mines Health and Safety Act 1996, the Occupational Health and Safety Act 1993 or the Merchant Shipping Act,1951 (Act No 57 of 1951).

2) The list of activities is outlined in document **R-02-STA-PCE.**

3) Engineering work performed by a Professional Certificated Engineer includes -

   (a) the application of current engineering technology;
   (b) the management and operation of technology-based engineering solutions and processes;
   (c) the introduction of known engineering services and management methods;
   (d) the management of the implementation of broadly-defined engineering projects and the routine maintenance of engineering infrastructure;
   (e) the management of moderate to high level of risks associated with engineering processes, systems, equipment and infrastructure; and the specify operational and safety requirements to ensure inherently safe working conditions; within the specific context relating to persons working in factories, mines and on ships as certificated persons appointed in terms of the Occupational Health and Safety Act, 1993, the Mines Health and Safety Act, 1996 and the Merchant Shipping Act, 19517.

4) A person may perform work identified in this section if he or she is in possession of any one or more of the following government certificates of competency:

   (a) Electrical Engineer's Certificate of Competency issued in terms of the Mines Health and Safety Act, 1996;
   (b) Mechanical Engineer's Certificate of Competency issued in terms of the Mines Health and Safety Act, 1996;
   (c) Electrical Engineer's Certificate of Competency issued in terms of the

Occupational Health and Safety Act, 1993;

(d) Mechanical Engineer's Certificate of Competency issued in terms of the Occupational Health and Safety Act, 1993;

(e) Manager's Certificate of Competency (Metalliferous) issued in terms of the Mines Health and Safety Act, 1996;

(f) Manager's Certificate of Competency (Coal) issued in terms of Mines Health and Safety Act, 1996; and

(g) Chief Engineer Officer- Foreign Going Certificate of Competency issued in terms of the Merchant Shipping Act, 1951.

17. SCOPE OF SERVICES

The standard services performed by a person registered in any category referred to in section 18(1)(a) of the Engineering Profession Act, 2000 (Act No.46 of 2000) who performs identified engineering work in the applicable stages of an engineering project or construction works project are given in **Table A1** in **Annexure A**.

18. WORK BY PERSON WHO IS RESPONSIBLE FOR THE PLANNING, DESIGN AND DELIVERY OF EDUCATION AND TRAINING PROGRAMMES AND EMPLOYEE OF ORGAN OF STATE.

1) Any person who is responsible for the planning, design, academic work, and delivery of education and training programmes accredited by ECSA and assessment of students at the engineering exit level at a higher education institution that is established, deemed to be established or declared as a public or private higher education institution under the Higher Education Act, 1997 (Act No 101 of 1997) or at a public college as defined in the Continuing Education and Training Act, 2006 (Act No. 16 of 2006), is deemed to be a person who performs identified work contemplated in section 1 of this Notice. For the purpose of this section, "exit level" means the "exit level" contemplated in the Regulations issued in terms of the National Qualifications Framework Act, 67 of 2008.

2) Any person who is employed by an organ of state and whose conditions of service require of that person to manage the delivery and maintenance of engineering work is deemed to be a person who performs identified work contemplated in clause 1 of

this Notice.

19. PERFORMANCE OF IDENTIFIED WORK BY PERSON REGISTERED IN DIFFERENT CATEGORY

1) For the purposes of section 18(2) of the Engineering Profession Act, 2000 (Act No.46 of 2000) a person who is registered as a Professional Engineer is deemed to be registered as a Professional Engineering Technologist or Professional Engineering Technician and may perform the identified engineering work that a Professional Engineering Technologist or Professional Engineering Technician may perform as indicated in clauses 5 to 16 in the relevant engineering discipline provided that he or she is competent in terms of his or her education, training, and experience to perform that work.

2) A person who is registered as a Professional Engineering Technologist is deemed to be registered as a Professional Engineering Technician and may perform any of the identified engineering work that a Professional Engineering Technician may perform as indicated in clauses 5 to 16 in the relevant engineering discipline provided that he or she is competent in terms of his or her education, training and experience and authorisation to perform that work.

3) A person registered in a particular category referred to in section 18(1) (i)(ii)(iv) of the Engineering Profession Act, 2000 (Act No.46 of 2000) may, notwithstanding the provisions of clauses 5 to 16, perform any work identified in clauses 5 to 16 for a different category of the registered person, if ECSA grants such registered person a transitional authorisation, special consent or category adjustment, as the case may be.

4) A person who is registered as a Professional Certificated Engineer may perform engineering work identified at the broadly-defined level in the disciplines referred to in items 5,7,10,12,14 and 15 commensurate with the qualification or combination of qualifications that led to the issuing of his or her certificate of competency referred to in clause 16 as updated.

5) Notwithstanding the provisions of this section, a person who is registered as a candidate referred to in section 18(1)(b) of the Engineering Profession Act, 2000 (Act

No.46 of 2000) may not apply for special consent and may only perform identified engineering work under the direction, control and direct supervision of a person registered in the appropriate category in terms of the Engineering Profession Act, 2000 (Act No.46 of 2000) if the professional or person concerned is authorised under clauses 5 to 16 in the relevant engineering discipline to perform such identified engineering work.

20. TRANSITIONAL AUTHORISATION

1) A person who is registered in terms of the Engineering Profession Act, 2000 (Act No.46 of 2000) and who, after commencement of that Act but before commencement of this notice, performed identified engineering work referred to in clauses 5 to 16 for a person registered in a category of registration in which he or she is not registered, may apply to ECSA for a transitional authorisation.
2) An application for a transitional authorisation must be in writing, submitted to ECSA in the form determined by ECSA within six months from the date of commencement of this notice and be accompanied by-
   (a) proof of practice during the period contemplated in sub-clause (1) within the category that he or she is not registered for;
   (b) all available documents pertaining to that practice;
   (c) the name and contact details of at least two registered persons who are in a position to serve as personal referees;
   (d) the fee determined by ECSA in accordance with clause 12 of the Engineering Profession Act; and
   (e) any other information required by ECSA.
3) When considering an application for a transitional authorisation ECSA must take into account the education, training and experience of the applicant requesting such transitional authorisation to undertake the applicable identified engineering work commensurate with the competency requirements contemplated in clause 3.
4) ECSA may, after evaluation of the application for transitional authorisation refuse or approve the transitional authorisation and if it approves the transitional authorisation it may subject the approval to any condition it considers appropriate.
5) If ECSA refuses to grant a transitional authorisation it must, in writing, provide the applicant with the reasons for its decision.

6) If ECSA approves the transitional authorisation it must issue a transitional authorisation certificate in the manner determined by it and the certificate must contain the conditions of issue, if any.

7) A transitional authorisation certificate authorises the holder thereof to perform the work identified in terms of this Notice for another category of registered person for a period determined on the certificate provided that the holder remains a registered person, complies with the continuing professional development requirements and the conditions of approval, if any.

21. SPECIAL CONSENT

1) An ECSA professionally registered person who, after commencement of this notice, intends to perform work for a specific project, commission or appointment or a particular scope of work for which specific competencies are required and which is identified in this Notice for a person registered in a category of registration and linked to a particular discipline in which he or she is not registered, may apply to ECSA for special consent.

2) A person who is professionally registered in any of the Built Environment Councils, after commencement of this notice, intends to perform work for a specific project, commission or appointment or a particular scope of work for which specific competencies are required and which is identified in this Notice for a person registered in a category of registration and linked to a particular discipline in which he or she is not registered, may apply to ECSA for special consent.

3) An application for special consent must be in writing submitted to ECSA in the form determined by ECSA and be accompanied by-

   (a) a brief motivation for the application;

   (b) if applicable, an affidavit from the prospective client of the applicant, other consultants on the proposed team and the proposed contractor;

   (c) if applicable, an affidavit from the employer of the applicant who is entitled to perform the identified work by reason of the employer's registration in the applicable category;

   (d) all available documents pertaining to the proposed project;

(e) the name and contact details of at least two persons who are in a position to serve as personal referees;

(f) the fee determined by ECSA in accordance with clause 12 of the Engineering Profession Act; and

(g) any other information required by ECSA.

4) When considering a request for special consent, ECSA must take into account the education, training and experience of the applicant requesting such special consent to undertake the applicable identified engineering work at the level of complexity of a project contemplated in clause 2 commensurate with the competency requirements contemplated in clause 3.

5) ECSA may, after evaluating the application for special consent referred to in this clause, refuse or approve the special consent, and if it approves the special consent, it may condition the approval to any condition it considers appropriate.

6) If ECSA refuses to grant a special consent, it must, in writing, provide the applicant with the reasons for its decision within seven days of that decision.

7) If ECSA grants the special consent:

(a) for a specific project, commission or appointment it shall issue a special consent certificate for that specific project, commission or appointment; or

(b) for a particular scope of work which requires specific competencies, it shall issue a special consent certificate for that particular scope of work, in the manner determined by it and the certificate shall contain the conditions of issue, if any.

8) A special consent certificate granted for -

(a) a specific project, commission or appointment, authorises the holder thereof to perform the relevant work for the period stated on the certificate; or

(b) a particular scope of work which requires specific competencies, authorises the holder thereof to perform the particular scope of work for a period determined on the certificate provided that the person remains a registered person, complies with continuing professional development requirements and the conditions of approval, if any

22. CATEGORY ADJUSTMENT

1) A registered person who, after commencement of this notice, generally wants to perform work identified in clause 3 and 4 read with clause 5 to 16, for a person registered in a category of registration in which he or she is not registered, may apply to ECSA for a category adjustment.
2) An application for a category adjustment must comply with the rules of ECSA pertaining to registration.

23. CROSS-DISCIPLINARY PRACTISE

A person who is registered as a professional and who performs identified engineering work in a particular discipline identified in clauses 5 to 16 for which he or she has the competence, education, training and experience, may perform identified engineering work in a different discipline if he or she has the competence, education, training and experience to perform such work in that different discipline.

24. DUAL REGISTRATION

A person who is registered as a professional under the professions' Acts, other than the Engineering Profession Act may apply for registration with ECSA provided that such person can show proficiency to perform the identified engineering work applicable to the respective category of registration.

The work shall include aspects that are common to more than one Council where recognised requisite skills and competence permit the professional within one Council to undertake work identified within the scope of works of another Council.

25. SCOPE OF WORK IDENTIFIED BY THE COUNCIL FOR THE BUILT ENVIRONMENT FOR PROFESSIONALS OF OTHER COUNCILS.

1) A person registered in a category referred to in section 18(1)(a) of the Engineering Profession Act may not perform the scope of work determined in Annexure B, which falls within the scope of the Architectural Profession Act, 2000 (Act No. 44 of 2000) unless the education, training and experience of that person have specifically rendered him or her competent to perform that work and the work is performed within

the framework of architectural work as defined in Notice No. 43495 of 2020 issued by the Council for the Built Environment.

2) A person registered in a category referred to in section 18(1)(a) of the Engineering Profession Act may not, in conjunction with a person registered in terms of section 18(1)(a) of the Landscape Architectural Profession Act, 200 (Act No. 45 of 2000) unless the education, training and experience of that person have specifically rendered him or her competent to perform that work and the work is performed within the framework of engineering work.

3) A person registered in a category referred to in section 18(1)(a) of the Engineering Profession Act may not perform the scope of services contemplated in Notice No. 43495 of 2020 issued by the Council for the Built Environment which falls within the scope of services of property valuers profession regulated by the South Council for the Property Valuers Profession Act, 2000 (Act No. 47 of 2000) unless the qualification, training and experience of that person have specifically rendered him or her competent to perform those services and the services are performed within the framework of engineering work.

4) A person registered in a category referred to in section 18(1)(a) of the Engineering Profession Act may not perform the scope of services contemplated in Notice No. 43495 of 2020 issued by the Council for the Built Environment which falls within the scope of services of construction project management professions regulated by the Project and Construction Management Professions Act, 2000 (Act No. 48 of 2000) unless the qualification, training and experience of that person have specifically rendered him or her competent to perform those services and the services are performed within the framework of engineering work.

5) A person registered in a category referred to in section 18(1)(a) of the Engineering Profession Act may not perform the scope of services contemplated in Notice No. 43495 of 2020 issued by the Council for the Built Environment which falls within the scope of services of the quantity surveying profession regulated by the Quantity Surveying Profession Act, 2000 (Act No. 49 of 2000) unless the qualification, training and experience of that person have specifically rendered him or her competent to perform those services and the services are performed within the framework of

engineering work.

26. APPEAL

1) Any person who feels aggrieved by an action of ECSA as a result of the work identified in this notice or due to the refusal by ECSA to grant a transitional authorisation, special consent or category adjustment contemplated in clause 18, 19 or 20 may lodge an appeal against such an action with ECSA and section 35 of the Engineering Profession Act applies with the necessary changes.

27. IMPROPER CONDUCT

Any registered person who is not permitted to undertake work identified in clause 5 to 16 or who has not obtained a transitional authorisation, special consent or category adjustment to do so in terms of clause 18, 19 or 20, is in breach of the code of conduct of ECSA and the provisions of the Engineering Profession Act relating to improper conduct apply.

28. TRANSITIONAL PROVISIONS

1) Any person who is not registered in terms of the Engineering Profession Act, 2000 (Act No. 44 of 2000) and who is required to be registered as a professional or in a specified category in terms of this Notice must, within 36 months of the date on which this Notice comes into operation, apply for registration according to the programme contemplated in sub-clause in the appropriate category referred to in section 18(1)(a) or (c) of the Engineering Profession Act, 2000 (Act No. 44 of 2000).

2) Any person whose registration in a category referred to in section 18(1)(a) or was cancelled in terms of the Engineering Profession Act, 2000 (Act No. 44 of 2000) within one year prior to the date on which this Notice commences must be re-registered in the appropriate professional category within six months from the date on which this Notice commences unless he or she is not required to be so registered in terms of this Notice.

REVISION HISTORY

Revision Number	Revision Date	Revision Details	Approved By
Rev.0	26 March 2021	Gazette	
Rev.0	09 July 2024	First Draft	Working Group
Rev.0	31 July 2024	Final Draft Reviewed	Regulatory Instruments BU and Working Group

The Rule for**:**

Identification of Engineering Work

Revision **0**, dated **xxxxx** and consisting of **xxx** pages, has been reviewed for adequacy by the Business Unit Manager and is approved by the Executive: Regulatory Services and International Relations (RSIR).

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Business Unit Manager Date

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Executive: RSIR Date

This definitive version of the policy is available on our website.

ANNEXURE A

WORK IDENTIFIED BY THE COUNCIL FOR THE BUILT ENVIRONMENT IN THE CONTEXT OF AN ENGINEERING PROJECT OR A CONSTRUCTION WORKS PROJECT INCLUDES THE SCOPE OF SERVICES IN THE FOLLOWING STAGES

1) The engineering work performed by a person registered in terms of section 18(1)(a) of the Engineering Profession Act, 2000 (Act No. 44 of 2000) in the context of an engineering project or a construction works project, includes the standard services set out in **Table A1** to the extent that the registered person's education, training, experience, and contextual knowledge render him or her competent to perform.

2) A person registered in terms of section 18(1)(a) of the Engineering Profession Act , 2000 (Act No. 44 of 2000) may, in the performance of engineering work in the context of an engineering project or the mechanical and electrical engineering work components of a construction works project, perform the work of a principal consultant or principal agent, if appointed as such by the client or employer, to the extent that the registered person's education, training, experience and contextual knowledge render him or her competent to perform.

3) Stages 7, 8 and 9 in **Table A1** are only applicable to engineering projects.

Table A 1: **Scope of services for a person registered in terms of section 18(1)(a) of the Engineering Profession Act in the context of an engineering project or a construction works project.**

STAGE 1 – PROJECT INITIATION AND BRIEFING
Standard Services
1.1 Assist the client to procure the necessary and appropriate consultants, including the clear definition of their roles, responsibilities and liabilities.
1.2. Establish in conjunction with the client, consultants and all relevant authorities the site characteristics necessary for the proper design and approval of the intended project.
1.3. Manage the integration of the preliminary design to form the basis for the initial viability assessment of the project.
STAGE 2 – CONCEPT AND FEASIBILITY

Standard Services
2.1 Assist the client to procure the necessary and appropriate consultants including the clear definition of their roles, responsibilities and liabilities.
2.2 Advise the client on the requirement to appoint a Health and Safety Consultant.
1.3 Manage and integrate the concept documentation for presentation to the client for approval.
STAGE 3 – DESIGN DEVELOPMENT
Standard Services
3.1 Assist the client to procure the balance of the consultants, including the clear definition of their roles, responsibilities and liabilities.
3.2 Manage, co-ordinate and integrate the design by the consultants.
3.3 Conduct and record the co-ordination meetings.
3.4 Manage and monitor the timeous submission by the design team of all plans and documentation to obtain the necessary statutory approvals.
3.5 Establish responsibilities and monitor the information flow among the design team.
3.6 Facilitate and monitor the timeous technical co-ordination of the design by the design team.
STAGE 4 – TENDER DOCUMENTATION AND PROCUREMENT
Standard Services
4.1 Manage the tender process in accordance with agreed procedures.
STAGE 5 – CONSTRUCTION DOCUMENTATION AND MANAGEMENT
Standard Services
5.1 Appoint contractors on behalf of the client, including the finalisation of all agreements.
5.2 Instruct the contractor on behalf of the client to appoint subcontractors.
5.3 Receive, co-ordinate, review and obtain approval of all contract documentation provided by the contractor, subcontractors and suppliers for compliance with all the contract requirements.
5.4 Facilitate the handover of the site to the contractor.
5.5 Regularly conduct and record the necessary site meetings.
5.6 Monitor the compliance by the contractors of the requirements of the Health and Safety Consultant.
5.7 Monitor the preparation by the Environmental Consultants of the Environmental Management Plan.
5.8 Establish the construction information distribution procedures.
5.9 Agree and monitor the Construction Documentation Schedule for timeous delivery of required information to the contractors.

5.10 Manage the review and approval of all necessary shop details and product propriety information.
5.11 Agree to the quality assurance procedures and monitor the implementation thereof by the consultants and contractors.
5.12 Monitor, review, approve and certify monthly progress payments.
5.13 Receive, review and adjudicate any contractual claims.
5.14 Issue the Practical Completion Lists and the Certificate of Practical Completion.
5.15 Issue of the Works Completion List by the consultants to the contractors.
5.16 Check the defects items to achieve Works Completion.
STAGE 6 – PROJECT CLOSE OUT
Standard Services
6.1 Issue the Works Completion Certificate.
6.2 Preparation of all as-built drawings and design documentation.
6.3 The procurement of all statutory compliance certificates and documentation.
6.4 Issue the Final Completion Defects list and Certificate of Final Completion.
STAGE 7: OPERATE IN ACCORDANCE WITH PURPOSE STATEMENT FOR LIFE OF PROJECT
STAGE 8: MAINTAIN THE AS-BUILT-STATE FOR LIFE OF PROJECT
STAGE 9: SHUTDOWN PERMANENTLY; DECOMMISSION; DEMOLISH AND RE-INSTATE

ANNEXURE B

WORK IDENTIFIED BY THE COUNCIL FOR THE BUILT ENVIRONMENT WHICH FALLS WITHIN THE SCOPE OF THE ENGINEERING PROFESSION WHICH IS REGULATED BY THE ENGINEERING PROFESSION ACT WHICH MAY BE PERFORMED BY A PERSON REGISTERED IN A CATEGORY REFERRED TO IN SECTION 18(1)(a) OF THE ARCHITECTURAL PROFESSION ACT

1) A person registered in terms of section 18(1)(a) of the Architectural Profession Act, 2000, 2000 (Act No. 44 of 2000) may perform the following work which falls within the scope of the engineering profession which is regulated by the Engineering Profession Act to the extent that the registered person' education, training, experience and contextual knowledge render them competent to perform.

2) The design of any building or building component using the deemed-to-satisfy requirements given in SANS 10400: The application of the National Building Regulations, excluding the application of rational design or rational assessment as defined in SANS 10400-A.

ANNEXURE C

WORK IDENTIFIED BY THE COUNCIL FOR THE BUIIT ENVIRONMENT WHICH FALLS WITHIN THE SCOPE OF THE PROJECT AND CONSTRUCTION PROJECT MANAGEMENT PROFESSION REG ULATED BY THE PROJECT AND CONSTRUCTION PROJECT MANAGEMENT PROFESSION ACT, 2000 WHICH MAY BE PERFORMED BY A PROFESSIONAL REGISTERED IN THE CATEGORY REFERRED TO IN 18(1)(a)(i) OF THE ENGINEERING PROFESSION ACT

1) A person registered in terms of section 18(1)(a)(i) of the Engineering Profession Ac, 2000 (Act No. 44 of 2000) may perform the scope of services indicated in Table C1 below which falls within the scope of services identified by the Council for the Built Environment for a professional registered in terms of the Project and Construction Management Professions Act,2000, to the extent that the registered person' education, training, experience and contextual knowledge render them competent to perform.

2) The work referred to in the table below is the work contemplated in Notice No.43495 of 2020 issued by the Council for the Built Environment.

STAGE 1- PROJECT INITIATION AND BRIEFING	
Standard Services	
1.1	Assist the client in the procurement of the necessary and appropriate consultants, including the clear definition of their roles, responsibilities, and liabilities.
1.2.	Establish in conjunction with the client, consultants, and all relevant authorities the site characteristics necessary for the proper design and approval of the intended project.
1.3.	Manage the integration of the preliminary design to form the basis for the initial viability assessment of the project.
STAGE 2- CONCEPT AND FEASIBILITY	
Standard Services	
2.1	Assist the client in the procurement of the necessary and appropriate consultants, including the clear definition of their roles, responsibilities, and liabilities.
2.2	Advise the client on the requirement to appoint a Health and Safety Consultant.
2.3	Manage and integrate the concept documentation for presentation to the client for approval.

STAGE 3 - DESIGN DEVELOPMENT
Standard Services
3.1 Assist the client in the procurement of the balance of the consultants including the clear definition of their roles, responsibilities and liabilities.
3.2 Manage, co-ordinate and integrate the design by the consultants.
3.3 Conduct and record the co-ordination meetings.
3.4 Manage and monitor the timeous submission by the design team of all plans and documentation to obtain the necessary statutory approvals.
3.5 Establish responsibilities and monitor the information flow between the design team.
3.6 Facilitate and monitor the timeous technical co-ordination of the design by the design team,
STAGE 4- TENDER DOCUMENTATION AND PROCUREMENT
Standard Services
4.1 Manage the tender process in accordance with agreed procedures.
STAGE 5- CONSTRUCTION DOCUMENTION AND MANAGEMENT
Standard Services
5.1 Appoint contractor(s) on behalf of the client including the finalisation of all agreements.
5.2 Instruct the contractor on behalf of the client to appoint subcontractors.
5.3 Receive, coordinate, review, and obtain approval of all contract documentation provided by the contractor, subcontractors, and suppliers for compliance with all of thecontract requirements.
5.4 Facilitate the handover of the site to the contractor.
5.5 Regularly conduct and record the necessary site meetings.
5.6 Monitor the compliance by the contractors of the requirements of the Health and Safety Consultant.
5.7 Monitor the preparation by the Environmental Consultants of the Environmental Management Plan.
5.8 Establish the construction information distribution procedures.

5.9 Agree and monitor the Construction Documentation Schedule for timeous delivery of required information to the contractors.
5.10 Manage the review and approval of all necessary shop details and product propriety information.
5.11 Agree to the quality assurance procedures and monitor the implementation thereof by the consultants and contractors.
5.12 Monitor, review, approve and certify monthly progress payments.
5.13 Receive, review and adjudicate any contractual claims.
5.14 Issue the Practical Completion Lists and the Certificate of Practical Completion.
5.15 Issue of the Works Completion List by the consultants to the contractors.
5.16 Check the defects Sections to achieve Works Completion.
STAGE 6 - PROJECT CLOSE OUT
Standard Services
6.1 Issue the Works Completion Certificate
6.2 Preparation of all as-built drawings and design documentation.
6.3 The procurement of all statutory compliance certificates and documentation.
6.4 Issue the Final Completion Defects list and Certificate of Final Completion.